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TWO NEW *STENOTREMA*, WITH NOTES ON *S. HIRSUTUM* AND *S. BARBATUM*

BY F. WAYNE GRIMM

Visiting investigator, Mollusc Section,
National Museum of Natural Sciences,
National Museums of Canada, Ottawa 4

Stenotrema simile, new species

Figure A

Shell imperforate, thin, subtranslucent to opaque, subglobose with a low conoid spire, a well rounded periphery and convex base. Color variable, ranging from deep cinnamon-brown to olive buff (of Ridgway). Embryonic whorl coarsely granulate with radially

elongate granules. Later whorls densely pilose, covered with moderately long, stiff, curved hairs with rounded bases. Parietal tooth slender, sinuous, not quite reaching the level of the basal lip, gently curved into the interdenticular sinus, then curving gently toward the outer lip tooth. Basal lip moderately wide, adnate to the body whorl on the outer margin for its entire length, the inner margin being conspicuously thickened around the lip notch. Lip notch deep, wide, U-shaped, with a thick, nob-like tooth on its peripheral edge. Interdenticular sinus deep and rounded. Outer lip tooth small. Fulcrum quite short, barely projecting beyond the basal lip callus, clearly visible through the shell, pointing radially from near the axis.

Height 6.7 mm. Diameter 9.3 mm. Whorls $5\frac{1}{4}$. Holotype.

Distribution.—**Maryland**: (*type locality*) Garrett Co.: leaf mould at base of steep slope near sharp bend of Bear Creek, 2.9 miles west of jct. U.S.-219 and Md.-42 (F. W. and G. F. Grimm, G. B. Morris, coll.), holotype 61543, paratypes 61544 National Museum of Canada; gorge of Bear Creek 2.8 miles east of Friendsville; leaf mould and logs near summit of Backbone Mountain, Roth Rock Fire Tower. **West Virginia**: Monongalia Co.: Cooper's Rock State Park. Nicholas Co.: wet sandstone talus 6.0 miles north of Richwood; cool wet woods along North Fork of Cherry River, 2-3 miles north of Richwood. Pocahontas Co.: damp maple hillside 5.3 miles west of Mill Point.

Stenotrema simile differs from *S. hirsutum* (Say) by being a bit larger, having coarser granulations on the embryonic whorl, a denser pile of longer hairs, a shorter fulcrum, a more distinct but thinner callus lining the lower lip, a deeper, more heavily callused lip notch which has a nob-like tooth on its peripheral margin, a deeper interdenticular sinus, and a more sinuous, thinner parietal tooth. *Stenotrema simile* is a rare, solitary species which inhabits cool, wet woods and ravines on the Appalachian Plateau. In the same region, *S. hirsutum* is a gregarious species which inhabits dry upland oak woods, cut over woods, and clearings.

Stenotrema simile differs from *S. barbatum* (Clapp) by having coarse granulations on the embryonic whorl (the embryonic whorl of *S. barbatum* is smooth to finely striate), smaller hairs on the surface of the shell, a much shorter, stouter fulcrum, a rounder outline with a proportionally higher spire and rounder base, a thicker callus on the lower lip, a deeper, more heavily callused lip

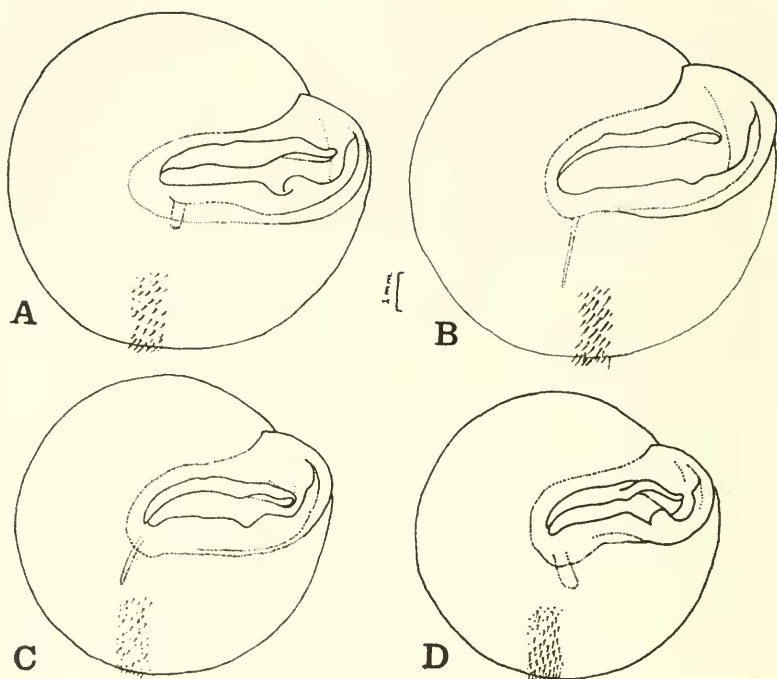


Figure 1. Shells of A. *Stenotrema simile* Grimm, holotype; B. *Stenotrema barbatum* (Clapp), Washington Co., Md.; C. *Stenotrema hirsutum* (Say), Howard Co., Md.; D. *Stenotrema burringtoni* Grimm, holotype.

notch with a nob-like tooth on its peripheral margin, a deeper interdenticular sinus, a higher parietal tooth and a narrower aperture. The inner half of the basal lip is adnate to the body whorl in *S. barbatum*; the entire basal lip is adnate in *S. simile* and *S. hirsutum*.

***Stenotrema burringtoni*, new species**

Figure D

Shell small, imperforate, subtranslucent, depressed globose with a low conoid spire, a well rounded periphery and convex base. Color pale cinnamon-brown (of Ridgway). Embryonic whorl coarsely granulate with rounded granules. Later whorls covered with moderately long, stiff, straight hairs with rounded bases. Parietal tooth comparatively stout, quite sinuous, reaching the level of the basal lip, strongly curved into the interdenticular sinus, its outer edge curved toward the outer lip tooth. Basal lip wide, sinuous, thickened on the inner edge. Lip notch deep, U-shaped, thickened at both edges, with a thick tooth at its peripheral edge.

Interdenticular sinus deep, forming a trough, rounded. Outer lip tooth quite distinct. Fulcrum short, very stout, projecting considerably beyond the basal lip callus, clearly visible through the shell, pointing tangentially from the axis and slanted toward the aperture.

Height 5.5 mm. Diameter 8.4 mm. Whorls 5. Holotype.

Type-locality.—**Virginia**: Highland Co.: limestone rubble 3.1 miles south-southwest of Mustoe on U.S.-220, holotype 61545, paratypes 61546 National Museum of Canada and Del. Mus. Nat. Hist. No. 41544.

Stenotrema burringtoni differs from *S. hirsutum* (Say) by averaging slightly smaller, having coarser, more rounded granulations on the embryonic whorl, a denser pile of longer hairs, a shorter, stouter fulcrum which is *slanted toward the aperture* (that of *S. hirsutum* is slanted away from the aperture), a thicker, more sinuous callus on the basal lip, a deeper, more heavily callused lip notch, a deeper, more rounded interdenticular sinus, and a higher, more sinuous parietal tooth which is turned into the interdenticular sinus, then swings upward toward the outer lip tooth. The parietal tooth of *S. hirsutum* points directly at the outer lip tooth.

Stenotrema burringtoni is named in honor of Horace Burrington Baker.

***Stenotrema hirsutum* (Say)**

Figure C

Because this species is likely to be confused with both of the preceding species, and frequently has been confused with *Stenotrema barbatum* (Clapp), a short discussion of it is presented here. Little can be added to the accurate description given by Pilsbry (1940, p. 662) except to state that despite its wide range, *S. hirsutum* is quite uniform in its appearance. After examining many lots of this species in the collections of the United States National Museum, the Academy of Natural Sciences of Philadelphia, the University of Michigan Museum of Zoology, and the National Museum of Canada, I noted no significant variation in sculpture or in the appearance of the aperture. The diameter varies from about 6.4 mm. to 8.8 mm., and the height from 4.5 mm. to nearly 6.0 mm. Extremes in size are rather rare. The fulcrum of *S. hirsutum* is moderately large, about $\frac{1}{4}$ to $\frac{1}{3}$ the width of the body whorl, and is slanted posteriad.

Stenotrema hirsutum ranges from Connecticut to northern Georgia in the Piedmont and Appalachians, west on unglaciated land to southern Indiana, south through central Kentucky and

Tennessee to northern Alabama and northeastern Mississippi. Throughout its range it occupies upland oak woods, mixed oak-pine woods, cut over woods, and dry clearings. Often it is most abundant in ecotonal situations such as roadsides and the edges of partially cleared upland woods.

***Stenotrema barbatum* (Clapp)**

Figure B.

Polygyra (*Stenotrema*) *barbata* Clapp, 1904, *Nautilus* 18 (8): 85.

Polygyra hirsuta yarmouthensis F. C. Baker, 1927, *Nautilus* 40 (4): 115.

Stenotrema hirsutum form *yarmouthense* (F. C. Baker), Pilsbry, 1940, *Land Moll. N. Am.* 1 (2): 665.

Stenotrema hirsutum (Say) in part, Pilsbry, *op. cit.*: 662-665.

Stenotrema hirsutum barbatum (Clapp), Pilsbry, *op. cit.*: 665-666.

Stenotrema hirsutum (Say), Oughton, 1948, *Univ. of Toronto Biol. Ser.* 57: 10.

Stenotrema barbatum (Clapp), Hubricht, 1950, *Nautilus* 64 (1): 7. Listed, no discussion.

Stenotrema barbatum (Clapp), Hubricht, 1962, *Sterkiana* 8: 1. Discussion.

Stenotrema hirsutum (Say) in part, LaRocque, 1970, *Bull. Geol. Svy. Ohio* 62 (4): 566.

Stenotrema barbatum may be separated from *S. hirsutum* by its smooth to obsoletely ribbed embryonic whorl, by its larger, more widely spaced, stiffer hairs, by the weaker armature of its aperture, and by its longer, more slender fulcrum. The basal lip of *S. barbatum* is reflected, and does not become adnate to the body whorl until the lip notch is reached. The basal lip of *S. hirsutum* and the two species herein described is adnate to the body whorl for its entire length. The lip notch of *S. barbatum* is quite weak and shallow, nearly disappearing in some examples, and the aperture is wide because of the weakness of its teeth and thin basal lip.

Stenotrema barbatum is quite variable in size, ranging from 6.5 mm. to slightly over 11 mm. in diameter, and 4.1 mm. to 7 mm. in height. Usually it averages between 8.5 mm. and 10.5 mm. in diameter. Proportionally, its spire is lower than that of the other species discussed here. The largest examples are from floodplains near the Gulf Coast, the smallest are from loess and silt in the

northern Mississippi and Ohio valleys and from low ground in Michigan and southern Ontario.

This species ranges from Massachusetts to southern Minnesota (including the southern tip of Ontario), south in the west through Iowa to Kansas, in the east to Mississippi and Alabama, north on the Coastal Plain and Piedmont through the Carolinas to southern New England. Reports of *Stenotrema hirsutum* from northern Ohio, central and western New York, Michigan, Wisconsin, Iowa and Kansas are based upon *S. barbatum*.

Throughout most of its range *Stenotrema barbatum* is hygrophile, preferring shaded floodplains and marshes. It has been called the "lowland form" of *S. hirsutum*. It is most abundant where the calcium content of the soil is high, but it is found on acid soils as well. In scattered upland areas, usually near floodplains, it occupies ravines, clearings, and fields. I have found it with *S. hirsutum* several times in ravines at the bases of hills near floodplains on the Piedmont of Maryland, and have seen no intergradation.

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FLUORESCENCE IN ENDODONTID SNAILS

BY HUGH C. RAWLS AND ROGER L. YATES

Department of Zoology, Eastern Illinois University

Charleston, Illinois 61920

A review of the literature related to fluorescence reveals little concerning the occurrence of this phenomenon in animals. Furreg and Querner (1929, 1930) described fluorescence of the shells of gastropods of the families Trochidae and Turbinidae. Latham (1953) reported the occurrence of fluorescence in the fur of the